

**Technology
for**

Alaskan Transportation

Winter 1987 — Volume 6
University of Alaska Fairbanks
Transportation Technology
Transfer Program

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The 1988 Alaska Transportation Forum

The annual Alaska Transportation Forum is scheduled for March 4-5 in Fairbanks.

The 1988 forum will also incorporate Alaska's input to the "Transportation 2020" series of national public forums to be held in all 50 states and Washington, DC. This is an important step in the formulation of a new national policy on surface transportation. This new policy will replace the focus on completing the U.S. interstate system, which has been the cornerstone of U.S. transportation policy for three decades. The future of federal funding of Alaskan highways is one of the key policy issues emerging for Alaska. Just last year, the U.S. House of Representatives drafted legislation to make major cuts in federal aid to Alaska's highways. With major national and state policy changes looming, it has never been

so important to make Alaska's concerns known.

Because of this theme, this year's Alaska Transportation Forum is expected to tackle issues with longer term implications (but not limited to highway issues). Topics may also address current transportation issues and ongoing research relevant to transportation in Alaska. We especially encourage representatives of local government to express their concerns and opinions.

Topics presented at prior Alaska Transportation Forums have encompassed a wide range of interests related to transportation in Alaska. These included load restrictions, pavement condition, trends, motor carrier safety concerns, deregulation, planning case studies, economic studies, aviation concerns, environmental issues, design guide-

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Roadway Work Zones Warning and Guidance

Alaska seems to have two seasons—winter and road repair. Even though we're immersed in the former, I've been thinking about the road repair season and a friend who was killed near Fairbanks while working on a highway last summer. Before summer is once again upon us, it would be useful to think about better ways to protect drivers and workers in construction and maintenance zones.

Richard D. Morgan of the Federal High-

way Administration summarized the problem in the January 1987 issue of *Roads and Bridges*. He indicated there is considerably more reconstruction under traffic nowadays than in the past, when initial construction on new alignment was away from the existing traffic. Increased maintenance activities and worker exposure have resulted in a rise in work zone fatalities from 500 in 1982 to 700 in 1985.

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Transportation Forum

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lines, road construction and materials, as well as open forum sessions for discussion of relevant issues.

This year's topics could include similar issues, plus issues that will be impacted by changes in national transportation policy such as access to Alaska's natural resources, lower standards for low-volume roads, maintenance and rehabilitation of the existing transportation system, access to remote areas of Alaska and the effects of transportation on tourism. Participants in the 1988 forum should include representatives from all levels of government, public, private and academic sectors.

Request for Presentations

The University of Alaska Transportation Center requests presentations for the 1988 Alaska Transportation Forum.

Presentations on March 4 will have a similar format to prior years. Speakers will be scheduled for 30-minute time slots, of which at least five minutes must be available for audience participation. Additional discussion of topics may also arise during the open forum session.

To be considered for presentation, submissions must reach the UATC committee no later than January 8, 1988. Speakers will be noti-

fied of acceptance by January 22, 1988. As a parallel effort, testimony on "Transportation 2020" issues will be solicited for five-minute blocks on March 5, 1988.

A tentative program will be mailed to all potential registrants by January 29. Formal papers are not required, but a short (one page maximum) formal synopsis of each accepted presentation will be required for distribution. Interested parties should submit a synopsis of their proposed presentation for review to:

UATC, Advisory Committee
235 Duckering Building
University of Alaska Fairbanks
Fairbanks, AK 99775

News & Views

1988 ASPE Meeting

The annual meeting of the Alaska Society of Professional Engineers will be held in Fairbanks from March 11 to March 13, 1988. A special guest will be Chuck Samson, P.E., 1987-88 National President of the National Society of Professional Engineers. In addition, the statewide MATHCOUNTS finals (chaired by Clark Milne, P.E.) will be held that weekend in conjunction with the annual meeting.

The meeting will be hosted by 1988-89 ASPE President Larry Bennett, P.E. Bennett invites all of Alaska's professional engineers and associated professionals to attend the meeting. He is currently assembling a committee to finalize details related to program, banquet, social events, tours and the like. The Arctic Winter Games begin in Fairbanks on March 13, so professional engineers will be able to attend the opening events of the games as well as the annual meeting.

For further information, call Larry or Joan at (907) 474-6121 or write the Department of Engineering and Science Management, University of Alaska Fairbanks, 539 Duckering Building, Fairbanks, AK 99775.

Improving Safety of Two-Lane Rural Roads

Two-lane rural highways constitute most of the Alaskan highway system. The two-

lane rural highway has been criticized in the Lower 48 because of its rather poor safety performance. However, there are some low-cost improvements that can improve overall safety.

Nationwide, more accidents occur on two-lane rural highways than on any other kind of rural highway, except four-lane undivided roads. Two-lane rural highways hold the highest percentage of head-on collisions and single-vehicle accidents. The probability of an accident is highest at intersections, horizontal curves and bridges. Lessons learned in the Lower 48 are equally valid in Alaska.

Low-cost safety improvements, such as signing and delineation, could improve overall safety on two-lane rural highways. Other cost-effective improvements include the selective removal of trees (particularly on the outside of horizontal curves), painting center lines on curves, and placing guardrails on the outside of curves with qualifying fill slopes and height. In addition, pavement markings and low-cost improvements of sight distance at intersections are cost-effective safety measures.

Highway pavement and shoulder widening, with some alignment changes, may be justified on two-lane rural highways with average daily traffic volumes equal to or greater than 3,000 to 5,000 vehicles. However, more serious consideration should be given to specific locations of the highway system, such as intersections and curves,

which experience a disproportionate share of accidents; improvements here would have a higher potential safety payoff.

General improvements such as adding centerline and edgeline markings, and widening and resurfacing highway pavement and shoulders would increase the safety of these spot locations to levels closer to those of other highway sections.

Transportation 2020 Forums

Alaskans will soon have the opportunity to help shape national policy on surface transportation for the 1990s and beyond. The American Association of State Highway and Transportation (AASHTO) is coordinating a national effort to assess the nation's surface transportation requirements through the year 2020. Participants will develop alternative proposals for meeting those needs at the federal, state and local levels. And they will achieve a consensus on the best means of doing the job.

AASHTO will use a series of public forums (conducted as hearings in each state) on the future of federal funding for transportation. These hearings will be used to establish a new direction for national policy on surface transportation. Representatives from the public and private sectors will be urged to express concerns about future transportation through five-minute oral presentations

or written submissions. Statements are needed from the widest possible spectrum of interests.

The Alaskan 2020 hearings will be held March 5 as part of the 1988 Alaska Transportation Forum in Fairbanks. The future of federal funding for highways in Alaska is just one of the key policy issues emerging for Alaska. For more information, see the article on the 1988 Alaska Transportation Forum on the first page of this newsletter.

Liability on Low-Volume Roads

A dirt road with a recorded volume of three vehicles per day was the location of a single-vehicle accident that resulted in a lawsuit against a county. The accident involved a 305 cc motorcycle operated by a frequent traveler on the road.

The accident occurred in May in Iowa following unusually heavy rains that caused water to flow across the road and erode the dirt surface. One depression was 12 to 15 inches wide and as much as 3 to 4 inches deep across the full width of the road. The depression caused the motorcycle to spill, injuring the operator.

Testimony in the trial indicated that the ditches on this road were usually filled and probably had never been cleaned out. The road surface, which was bladed infrequently, probably had not yet been graded for spring, since maintenance efforts concentrated on granular-surfaced roads carrying high traffic volumes.

An out-of-state expert testified for the plaintiff, citing that loose-surfaced roads should be bladed to provide a crown of 1/2 inch per foot. Jurors were made aware of the pronounced differences between the road in question and a road maintained to textbook conditions.

The jury found that the county was 40 percent negligent and returned a judgment in six figures against the county. (Reprinted from *Technology News*.)

Shortcuts Shortcircuit Safety

Shortcuts cause many of the accidents that happen to people working on Alaskan roads.

Shortcuts can be valuable if they result from an analysis of all the factors involved

including safety. But too often shortcuts result from poor planning and spur-of-the-moment decisions. Successful shortcuts save time. Unsuccessful shortcuts can lead to injury with its associated pain, time off from work and, in many cases, permanent disability.

Here are some potentially dangerous shortcuts.

- Setting up traffic control without adequate signs, cones or personnel.
- Using the wrong tools for the job.
- Failing to use personal protection equipment.
- Ascending or descending embankments with slippery surfaces or loose material instead of walking around the area.
- Using hands to remove rocks and other debris from the tailgate area of dump trucks or not using the handholds.
- Standing on tires or fenders to get in and out of truck beds.
- Lifting heavy or awkward objects alone or without the use of mechanical devices.
- Jumping off equipment and platforms.
- Failing to properly position ladders.
- Using defective tools or equipment.
- Assuming a position too close to operating equipment.
- Failing to use machinery guards.

There are many other shortcuts too. Shortcuts that can cut. They can cut into your bodies, your wallets and your good life.

Think of the consequences before you act. Avoid the temptation to take shortcuts which, in the end, can cost a lot of extra time and a lot of extra grief.

Bridge Posting

A truck driver was injured when a county bridge collapsed under the 24-ton weight of his truck. Gravel trucks of approximately the same weight had used the bridge frequently without mishap. At trial, the county highway superintendent testified that a 10-ton-limit sign had been posted on the bridge before he took office. But he concluded after inspecting the bridge prior to the accident that the bridge was capable of carrying 24-ton loads, as it frequently did. There was evidence that the load limit sign had not been on the bridge for approximately six months

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About Our Newsletter

Technology for Alaskan Transportation is a quarterly newsletter that informs local transportation people in government and industry of useful publications and services. The newsletter reports on useful research findings, new technology, and learning opportunities such as workshops, seminars and video tapes. To get on our mailing list or to contribute to the newsletter, contact:

Editor
Transportation Technology Transfer Program
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(907) 474-6116

About Our Program

The goal of the Transportation Technology Transfer Program is to help local agencies obtain useful information and training related to local transportation needs. The program focuses on technology related to roads, bridges and public transportation. In addition to our newsletter, we will provide low-cost seminars and workshops; provide copies of useful technical reports upon request, and answer phone and mail inquiries related to transportation technology. If we don't have the answer, we will refer the question to a suitable specialist.

A variety of organizations support the Transportation Technology Transfer Program:

- ☐ the University of Alaska Transportation Center (UATC is an interdisciplinary center with participation from the schools of Engineering, Mineral Engineering, Management, and Agriculture and Land Resources Management).
- ☐ the Alaska Department of Transportation and Public Facilities
- ☐ the Federal Highway Administration

We invite you to address your questions or comments to any of the following people:

John D. Martin, P.E.
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Alaska Department of Transportation and Public Facilities
2301 Peger Road
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Dr. Jan Botha
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Dr. Nick Coetzee
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(907) 474-6124

Calendar of Events

We will be happy to include any relevant event you would like to publicize. Call the editor at (907) 474-6116. For information about events in Alaska, call John D. Martin at (907) 451-5150 or Dr. Jan Botha at (907) 474-7497.

1988

January 11-15—67th Annual Meeting of the Transportation Research Board. Washington, DC. Contact Angelia Arrington at (202) 334-2934.

March 4-5—1988 Alaska Transportation Forum. Fairbanks.

March 5—Transportation 2020 Forum. Fairbanks

March 11-13—Annual Meeting of the Alaska Society of Professional Engineers. Fairbanks. Call Larry or Joan at (907) 474-6121.

March 21-25—Course on law and engineering. International Right of Way Association. Fairbanks. Contact Paul Costello at (907) 457-7033.

June 1-5—2nd International Conference on Case Histories in Geotechnical Engineering. St. Louis, MO. Contact Angelia Arrington at (202) 334-2934.

June 8-9—1st International Symposium on Surface Characteristics. State College, PA. Contact Angelia Arrington at (202) 334-2934.

Work Zones (continued from page 1)

One of the major reasons for work zone accidents is the introduction of a surprise element into the roadway. Drivers do not expect to crest a hill and see a backhoe on their side of the highway or to have their lane of a street blocked by utility work. For this reason, we need to give ample warning to the driver, who may be less than fully attentive.

The most common type of work zone fatality involves vehicle-to-vehicle collisions, such as head-on or rear-end accidents. This points out the need to provide informational signs and proper guidance to the driver on what to expect and do. Over 50 percent of work zone fatalities occur at night, when proper delineation of the work zone must be provided through the use of illuminated or reflectorized traffic control devices.

The key words to a safer work zone are

warn and guide. Warn the driver that something out of the ordinary is taking place in the roadway, and guide the motorist through the area of activity.

So, what does all this mean for anyone working within or near the roadway? You have a responsibility to warn motorists that people are working on the roadway. Even though the dimensions and standards can be quite complex and you may not have all the required signs, barricades and cones to do the job perfectly, you will be better off in a liability suit if you can show that you made some attempt at marking work zones. At a minimum, you should have a ROAD WORK AHEAD sign and some traffic cones, plus a LANE CLOSED sign if a lane is blocked off. (Adapted from information provided by Marshall Jacks, Jr., who is the associate administrator for safety and operations for the Federal Highway Administration.)

Bridge Posting (continued from page 3)

before the collapse. The appellate court held that the county's failure to post a sign was negligence. There is no suggestion in the opinion that the county had any obligation to replace or rehabilitate the bridge so that it would be capable of safely supporting the usual traffic in the area. Neither is there any indication of how the court would rule if a sign had been posted by the county and regularly ignored by bridge users.

Other courts, however, have held it to be immaterial that the public agency had knowledge that vehicles weighing in excess of the posted load limitation regularly used a bridge before its collapse. Under this view, the driver who ignores the posted limit is breaking the law and does so at his own risk. (Adapted from the *Alabama Transportation Newsletter*.)

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___ Alaska Traffic Accidents, 1985, Alaska DOT&PF, 9/30/86, 92 pp.

___ Alaska Highways, Annual Traffic Report, 1985, Alaska DOT&PF, 514 pp.

THE ASPHALT INSTITUTE - Manual Series

___ Thickness Design-Asphalt Pavements for Highways and Streets, MS-1, 1981, 85 pp.

___ Mix Design Methods for Asphalt, Concrete and Other Hot-Mix Types, MS-2, 1984, 108 pp.

___ Asphalt Plant Manual, MS-3, 1983, 173 pp.

___ Introduction to Asphalt, MS-5, 1986, 76 pp.

___ Asphalt-Pocketbook of Useful Information, MS-6, 1982, 139 pp.

___ Asphalt-Paving Manual, MS-8, 1978, 145 pp.

___ Soils Manual, MS-10, 147 pp.

___ Full-Depth Asphalt Pavements for Air Carrier Airports, MS-11, 1983, 175 pp.

___ Asphalt in Hydraulics, MS-12, 1976, 76 pp.

___ Asphalt Cold-Mix Manual, MS-14, 1977, 113 pp.

___ Drainage of Asphalt Pavement Structures, MS-15, 1984, 124 pp.

___ Asphalt in Pavement Maintenance, MS-16, 1983, 141 pp.

___ Asphalt Overlays for Highway and Street Rehabilitation, MS-17, 1983, 161 pp.

___ Sampling Asphalt Products for Specification Compliance, MS-18, 1981, 44 pp.

___ Asphalt Hot-Mix Recycling, MS-20, 1986, 49 pp.

___ Asphalt Cold-Mix Recycling, MS-21, 1986, 74 pp.

___ Principles of Construction of Hot-Mix Asphalt Pavements, MS-22, 1983, 300 pp.

___ Thickness Design-Asphalt Pavements for Heavy Wheel Loads, MS-23.

THE ASPHALT INSTITUTE - Specification Series

___ Model Construction Specifications for Asphalt Concrete and Other Plant-Mix Types, SS-1, 1984, 57 pp.

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Notes on Publications and Videos

____ Specifications for Paving and Industrial Asphalts, SS-2, 1985-86, 56 pp.

____ Construction Specifications for Asphalt Curbs and Gutters, SS-3, 1983, 14 pp.

THE ASPHALT INSTITUTE - Engineering, Research, Education

____ Educational Series, 2 & 3, 7 - 12, 1978-82, 82 pp.

____ Construction Leaflets, 1973-76, 43 pp.

____ Bad Roads, Washington D.C., 1983, 60 pp.

____ Bituminous Pavements with Crushed Stone Aggregates, National Stone Association, 1981, 26 pp.

____ Bridge Formula Applications, Vol. 1, Report FHWA/RD-84/029, 77 pp.

____ Bridge Painting, Report FHWA-TS-79-272, 1979, 34 pp.

____ Calibration Procedures for Roadmeters, Report FHWA-TS-86-201, April 1986, 79 pp.

____ Case Studies in Rural Transportation Resource Management: A Guide for Local Elected Officials, FHWA, 1984, 80 pp.

____ Chip Seals Made Easy, Jack E. Stephens, Ph.D., P.E., 1984, 11 pp.

____ A Community Model for Handling Hazardous Materials Transportation Emergencies, FHWA 34/86/040, 1986, 17 pp.

____ Consolidated Procurement Study, U.S. Department of Transportation for Transportation Assoc. of South Dakota, 1985, 35 pp.

____ Corridor Alternatives Analysis, FHWA, AKDOT&PF, 1983, 298 pp.

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- ☐ Costs to the Public Due to the Use of Corrosive Deicing Chemicals and Comparison to Alternative Winter Road Maintenance Procedures, U.S. DOT, 1983, 39 pp.
- ☐ County Maintenance of Unpaved Roads in Indiana, Transportation Research Record 985, 7 pp.
- ☐ CRREL Technical Publications, 1976-86, 170 pp.
- ☐ Culvert Inspection Manual, Supplement to the Bridge Inspectors Training Manual, FHWA IP-86-2, 1986, 214 pp.
- ☐ Curb Space Management Strategies for Nashville, USDOT for Metropolitan Government of Nashville & Davidson County, 1984, 75 pp.
- ☐ Debris Problems in the River Environment, FHWA-RD-79-62, 1982, 67 pp.
- ☐ Drainage of Highway Pavements, FHWA-TS-84-20, 1984, 135 pp.
- ☐ Durable Pavement Marking Materials Workshops, FHWA-TS-81-221, 1981, 19 pp.
- ☐ Economic Analysis of Broad-Based Dips Versus Aluminum Pipe Culverts on Low Volume Roads, Research Report presented at the 1986 Annual Meeting of the TRB, 16 pp.
- ☐ Effects of County Highway Management Practices on Maintenance Costs for Unpaved Roads in Indiana, Transportation Research Record 1055, 8 pp.
- ☐ Emulsified Asphalt: Surface Treatment Manual, Chevron, 1985.
- ☐ Engineering Geophysics for Engineers, Engineering Geophysical Services, 368 pp.
- ☐ Evaluation and Testing of Micro-Computer Software for Travel Demand Forecasting, Mn/DOT Staff, April 1987, 24 pp.
- ☐ Fabrics in Asphalt Overlays-Design, Construction and Specifications, Research Report 261-35, Texas State Department of Highways and Public Transportation, 1984, 67 pp.
- ☐ Field Maintenance Manual for Georgia Counties, Local Roads and Streets, FHWA-TS-79-218, 1982, 185 pp.
- ☐ Field Manual on Design and Construction of Seal Coats, USDOT for Texas State Department of Highways and Public Transportation, 1981, 77 pp.
- ☐ Fifteen Year Pavement Condition History of Asphalt Rubber Membrane in Phoenix, Arizona, Russel H. Schnoumeir, 15 pp.
- ☐ Films for Highway Safety and Traffic Engineers, FHWA IP-86, 1986, 184 pp.
- ☐ Flexible Pavement Design Guide for Roads and Streets, National Stone Assoc., 1986, 27 pp.
- ☐ Fly Ash Facts for Highway Engineers, FHWA-DP-59-8, 1986, 47 pp.
- ☐ Guide for Selecting, Locating, and Designing Traffic Barriers, AASHTO, 1977, 336 pp.

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- ___ Guide for Signalized Left Turn Treatments, FHWA-IP-81-4, 1981, 41 pp.
- ___ Guidelines for Quality Control in Paving Fabric Installations, Caltrans, 8 pp.
- ___ The Highway ABC's, Your Missouri Highway System and How it Works, Missouri Highway and Transportation Commission, 1986, 17 pp.
- ___ Highway Capacity Manual, Special Report 209, Transportation Research Board, 1985, 504 pp.
- ___ Highway Safety Literature, Transportation Research Board, Spring 1986, 151 pp.
- ___ Highway Safety Training Resources Catalog, FHWA, 1986, 79 pp.
- ___ Highway Subdrainage Design, FHWA-TS-80-224, 1982, 162 pp.
- ___ The Hole Story: Facts and Fallacies of Potholes, APWA, 1983, 15 pp.
- ___ Hot Mix Bituminous Paving Manual, FHWA, 1981, 126 pp.
- ___ HRIS Abstracts, Vol. 19 No. 3, Transportation Research Board, 1986, 275 pp.
- ___ Hydraulic Design of Highway Culverts, FHWA-ID-85-15, 1985, 253 pp.
- ___ Hydrology, FHWA-IP-84-15, 1984, 342 pp.
- ___ The Impact of Traffic on Residential Areas, USDOT, 1982, 34 pp.
- ___ Improving Highway Information at Hazardous Locations: Seven Case Studies, FHWA, Project #48, 1985, 69 pp.
- ___ Inspector's Job Guide for Construction, Transportation Technical Assistance Office, Univ. of Missouri-Rolla, 13 pp.
- ___ Inspector's Manual for Traffic Signal Construction, Texas Dept. of Highways and Public Transportation, 1985, 70 pp.
- ___ Installation Manual for Corrugated Steel Drainage Structures, National Corrugated Steel Pipe Assoc., 1984, 93 pp.

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- ☐ Lessons Learned, Accident Prevention and Response Planning for Hazardous Materials Transportation, USDOT, USEPA, 1985, 81 pp.
- ☐ Life Saving Tips for Tire Servicemen and Supervisors, WISHA, 16pp.
- ☐ Linking Goods Movement and Economic Development: A Case Study Analysis, FHWA, 1984, 108 pp.
- ☐ Maintenance Techniques, Maintenance Practices for Local Roads, FHWA-PA-8-007, 1984, 227 pp.
- ☐ Managing Highway Maintenance: Reference Booklet of the Twenty Most Used Tables in Highway Maintenance, FHWA, 1985.
- ☐ Manual for Small Towns and Rural Areas to Develop a Hazardous Materials Emergency Plan: with an Example Application of the Methodology in Developing a Generalized Emergency Plan for Riley County, Kansas, Phase II- Final Report, U.S. DOT-RC-92013, January 1986, 136 pp.
- ☐ Manual on Countermeasures for Sign Vandalism, FHWA-IP-86-7, 1986, 158 pp.
- ☐ Manual on Real-Time Motorist Information Displays, FHWA, 1983, 197 pp.
- ☐ Materials and Methods for Sealing Cracks in Asphalt Concrete Pavements, Transportation Research Record 990, 10 pp.
- ☐ NACE Action Guides, Vol. 1, 307 pp., Vol. 2, 327 pp., Vol. 3, 563 pp., FHWA, 1986.

NATIONAL ASSOCIATION OF COUNTY ENGINEERS TRAINING GUIDE SERIES, FHWA, 1986.

- ☐ Blading Aggregate Surfaces, 50 pp.
- ☐ Handbook for Road Departments, 66 pp.
- ☐ How To Talk and Communicate at the Same Time, 31 pp.
- ☐ Improving Traffic Maintenance, 30 pp.
- ☐ Maintaining Bridges After Inspections, 123 pp.
- ☐ Tips for Conserving the Environment, 54 pp.
- ☐ Trainer's Guide, 19 pp.
- ☐ National Symposium on Local Roads, America Runs on Local Roads, 1986, 28 pp.
- ☐ New Ideas for Timber Bridges, Transportation Research Record 1053, 7 pp.
- ☐ A New Approach to Pedestrian Safety, Alfred J. Farina, 4th Annual Pedestrian Conference, Proceedings, 25 pp.

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- _____ An Overview for Elected Officials, Maintenance Practices for Local Roads, FHWA-PA-84-009, 214 pp.
- _____ Pavement and Shoulder Maintenance Performance Guides, FHWA-TS-84-208, 1984, 42 pp.
- _____ Pavement Maintenance and Pavement Management, Local Roads Program, Cornell University, Ithaca, NY, 1986, 59 pp.
- _____ Pavement Management Rehabilitation Programming: Eight States' Experiences, FHWA, 1983, 116 pp.
- _____ Pavement Marking Test and Evaluation Procedures, FHWA-TS-87-214, 1987, 208 pp.
- _____ Pavement Patching Guidelines, Report FHWA-TS-82-221, February 1983, 72 pp.
- _____ Paving Rating Procedures, FHWA, 1985, 175 pp.
- _____ Paving the Way With Fly Ash, Terracon Consultants, 26 pp.
- _____ Personnel Supervision, Maintenance Practices for Local Roads, FHWA-84-011, 126 pp.
- _____ Planning and Scheduling Work Zone Traffic, FHWA-IP-81-6, 1981, 65 pp.
- _____ Proceedings - 4th Annual Pedestrian Conference, Pedestrian Safety Meeting/Pedestrian Design Meeting, USDOT, 1984, 347 pp.
- _____ Proceedings of Maritime Alaska 81, Alaska Sea Grant Report 81-6, 1981, 290 pp.
- _____ Proceedings of the Portland Cement Concrete Pavement Patching Conference, FHWA-TS-83-211, 1984, 188 pp.
- _____ Program Administration, Maintenance Practices for Local Roads, FHWA-PA-84-010, 271 pp.
- _____ Public-Private Partnerships in Transportation: A Casebook for Local Elected Officials, FHWA, 1986, 155 pp.
- _____ Public Works Inspector's Manual, Building News, 1978, 600 pp.
- _____ Publications Catalog, Transportation Research Board, 1987, 62 pp.

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